WHAT IS CLAIMED IS:

1. A system for printing documents, comprising:

means for generating digital documents having handwritten text and machine printed text and for generating a request to print at least one of said digital

5   documents;

an intelligent printing control interface connected to said means for generating which receives said request and selectively processes said request to remove said handwritten text; and

means connected to said intelligent printing control interface for printing said

10   selectively processed request.

2.   The system of Claim 1, wherein said intelligent printing control interface further comprises:

a virtual printer driver for receiving said request;

15   a printing control panel for determining whether to process said request; and

a handwriting separation module for selectively processing said request, under control of said printing control panel, to remove said handwritten text.

3.   The system of Claim 2, wherein said handwriting separation module processes

20   said request by segmenting the digital image into a plurality of text blocks, computing an observation sequence for each of said text blocks, computing a first probability for each of said text blocks that said observation sequence would appear in a predetermined Hidden Markov Model for machine printed text, computing a

second probability for each of said text blocks that said observation sequence would appear in a predetermined Hidden Markov Model for handwritten text, comparing said first probability and said second probability for each of said text blocks, marking said text block as machine printed text if said first probability is greater than said

5   second probability, marking said text block as handwritten text if said second probability is greater than said first probability, and removing said marked handwritten text.

4.   A system for copying documents, comprising:

10   a scanner for generating a digital document having handwritten text and machine printed text and for generating a request to print said digital document;

an intelligent printing control interface connected to said scanner which receives said request and selectively processes said request to remove said handwritten text; and

15   a printer connected to said intelligent printing control interface for printing said selectively processed request.

5.   The system of Claim 4, wherein said intelligent printing control interface further comprises:

20   a virtual printer driver for receiving said request;

a printing control panel for determining whether to process said request; and

a handwriting separation module for selectively processing said request, under control of said printing control panel, to remove said handwritten text.

6.   The system of Claim 5, wherein said handwriting separation module processes said request by segmenting the digital image into a plurality of text blocks, computing an observation sequence for each of said text blocks, computing a first probability for each of said text blocks that said observation sequence would appear

5   in a predetermined Hidden Markov Model for machine printed text, computing a second probability for each of said text blocks that said observation sequence would appear in a predetermined Hidden Markov Model for handwritten text, comparing said first probability and said second probability for each of said text blocks, marking said text block as machine printed text if said first probability is greater than said

10   second probability, marking said text block as handwritten text if said second probability is greater than said first probability, and removing said marked handwritten text.

7.   A method of separating handwritten text from machine printed text in a digital

15   image containing a mixture of handwritten text and machine printed text, comprising the steps of:

A.   segmenting the digital image into a plurality of text blocks;

B.   computing an observation sequence for each of said text blocks;

C.   computing a first probability for each of said text blocks that said

20   observation sequence would appear in a predetermined Hidden Markov Model for machine printed text;

D.   computing a second probability for each of said text blocks that said observation sequence would appear in a predetermined Hidden Markov Model for

handwritten text;

E. comparing said first probability and said second probability for each of said text blocks;

F. marking said text block as machine printed text if said first probability

5 is greater than said second probability; and

G. marking said text block as handwritten text if said second probability is greater than said first probability.

8. The method of Claim 7, further comprising the step of post-processing the

10 digital image after each of said text blocks are marked as either machine printed text or handwritten text to correct single errors.

9. The method of Claim 7, wherein said segmenting step comprises the steps of:

generating connecting components within the digital image; and

15 grouping said connected components into a plurality of text blocks.

10. The method of Claim 9, wherein said grouping step comprises the steps of:

determining if each pair of neighboring connected components are on the same line;

20 for a given pair of neighboring connected components on the same line, determining if said pair of neighboring connected components are adjacent to each other;

for a given pair of neighboring connected components adjacent to each other,

determining if said pair of neighboring connected components have the same height; and

if said pair of neighboring connected components have the same height, merging said pair of neighboring connected components together into a single text

5   block.

11.   The method of Claim 10, wherein said step of determining if said pair of neighboring connected components are on the same line comprises the steps of:

identifying minimum vertical coordinates for each of said pair of connected

10   components;

determining if the difference between said minimum vertical coordinates of said neighboring connected components is less than a first predetermined threshold determining; and

when the difference between said minimum vertical coordinates of said

15   neighboring connected components is less than a first predetermined threshold determining, marking said pair of connected components as being on the same line.

12.   The method of Claim 10, wherein said step of determining if said pair of neighboring connected components are adjacent to each other further comprises the

20   steps of:

identifying maximum and minimum horizontal coordinates for each of said neighboring connected components;

determining if the difference between said maximum horizontal coordinate

of a first of said neighboring connected components and said minimum horizontal coordinate of a second of said neighboring connected components is less than a second predetermined threshold;

5   determining if the difference between said maximum horizontal coordinate of said second of said neighboring connected components and said minimum horizontal coordinate of said first of said neighboring connected components is less than said second predetermined threshold; and

when the difference between said maximum horizontal coordinate of said first of said neighboring connected components and said minimum horizontal coordinate

10   of said second of said neighboring connected components is less than said second predetermined threshold or when the difference between said maximum horizontal coordinate of said second of said neighboring connected components and said minimum horizontal coordinate of said first of said neighboring connected components is less than said second predetermined threshold, marking said pair of

15   connected components as being adjacent to each other.

13.   The method of Claim 10, wherein said step of determining if said pair of neighboring connected components have the same height further comprises the steps of:

20   identifying maximum and minimum vertical coordinates for each of said neighboring connected components;

determining the difference between the maximum and minimum vertical coordinate of a first of said neighboring connected components less the difference

between the maximum and minimum coordinates of a second of said neighboring connected components is less than a third predetermined threshold; and

when the difference between the maximum and minimum vertical coordinate of said first of said neighboring connected components less the difference between

5   the maximum and minimum coordinates of said second of said neighboring connected components is less than a third predetermined threshold, marking said pair of connected components as having the same height.

14.   A method for copying and printing documents, comprising the steps of:

10   generating a digital image of a document having both handwritten text and machine printed text;

generating a request to print said digital image;

processing said request to selectively remove said handwritten text; and

transmitting said selectively processed request to a printer for printing thereof.

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15.   The method of Claim 14, wherein said step of processing said request further comprises the steps of:

A.   segmenting said digital image into a plurality of text blocks;

B.   computing an observation sequence for each of said text blocks;

20   C.   computing a first probability for each of said text blocks that said observation sequence would appear in a predetermined Hidden Markov Model for machine printed text;

D.   computing a second probability for each of said text blocks that said

observation sequence would appear in a predetermined Hidden Markov Model for handwritten text;

    E.   comparing said first probability and said second probability for each of said text blocks;

5   F.   marking said text block as machine printed text if said first probability is greater than said second probability; and

    G.   marking said text block as handwritten text if said second probability is greater than said first probability.

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